xxter enOcean manual

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This manual is a general instruction for connecting the antenna and configuring xxter with enOcean. If required enOcean can also be combined with a KNX installation.

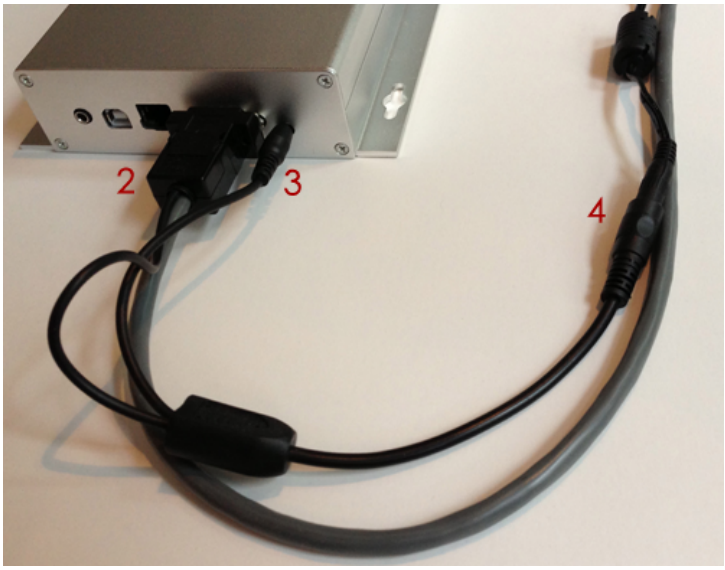
To make use of enOcean, please note the following prerequisites:

1) An xxter module type HC01C or newer
2) An xxter enOcean ANE01 antenna
3) The latest configuration tool (version 1.8.3 or newer)
4) The latest firmware (version 1.8.3 or newer)

Connecting the antenna

The enOcean ANE01 antenna has a serial connector and a power split cable, which both need to be connected. Please follow the following instructions:

1) Make sure the xxter is disconnected from the power.
2) Attach the serial connector of the ANE01 to the serial (RS232) port of your xxter.
3) Attach the power split cable to the xxter unit.
4) Attach the power adapter of the xxter unit to the split cable.



Now the power adaptor can be reconnected to the power socket and the xxter unit as well as the enOcean antenna will have power.

Using the repeater function

The ANE01 has three options for repeating:

1) No repeating (default), both dip-switches to OFF (number side)
2) Repeat only original telegrams (level 1), only dipswitch 1 to ON
3) Repeat original and 1-time repeated telegrams: both dipswitches to ON

A disconnect and reconnect of the power of the ANE01 is required before changes to these dipswitches will take effect.

Verifying the enOcean antenna

When the beta firmware is installed, the enOcean function will automatically be activated. This option can be turned on or off on the basic settings page of the xxter unit. On the status page you can see whether xxter has properly recognised and connected to the antenna.

Short introduction to the enOcean telegram format

With the new configuration tool you can configure enOcean components. Every enOcean device (a switch, actor, dimmer, sensor, etc.) can either transmit or receive telegrams or do both.

Every telegram has a sender address and a channel number, which is used to identify every device. In xxter you can create an alias for every device, for easier recognition.

Every enOcean telegram also has a specific type and function, which depends on the used hardware of the device. xxter now supports a great number of different types of telegrams and more will added in the near future. In case you want to apply a certain type of hardware that is not yet supported, please inform us and we will add it to the configuration options.

For xxter it is important to know which types of telegrams are supported by which device. Newer devices will automatically supply the type of the telegram, when the device is teached in. Older devices however do not support this feature and the type needs to be selected manually.

To look up the telegram type, a list of all supported brands and devices are included in addendum 2. In case you cannot find the device you want to configure, please let us know so we can further expand this list.

Every enOcean telegram has three separate parts: the first, main, part (RORG) and the parts FUNC and TYPE. The last two are only used for specific telegram types.

The first part (RORG) has three options:

RPS – switching command, used by switches (also called F6 / 05)

BS1 – 1bit telegrams, for single binary inputs (not often used, also called D5 / 06)

BS4 – 4byte telegrams, for all other types of telegrams (also called A5 / 07)

The FUNC and TYPE parts are only used for BS4 telegrams. In other cases these parts will be left blank.

FUNC is used to indicate the telegram function, for instance: Gas sensor (09)
TYPE is used to indicate the subtype of the telegram, for instance: monoxide alarm (01)

BS4 telegrams can also contain multiple values, for instance not only the CO_2 concentration, but also a temperature value. This all depends on the type of the telegram.

To recognise which value to use, xxter uses letters in addition to the telegram. Every letter stands for another value in the telegram and can be found in addendum 1.

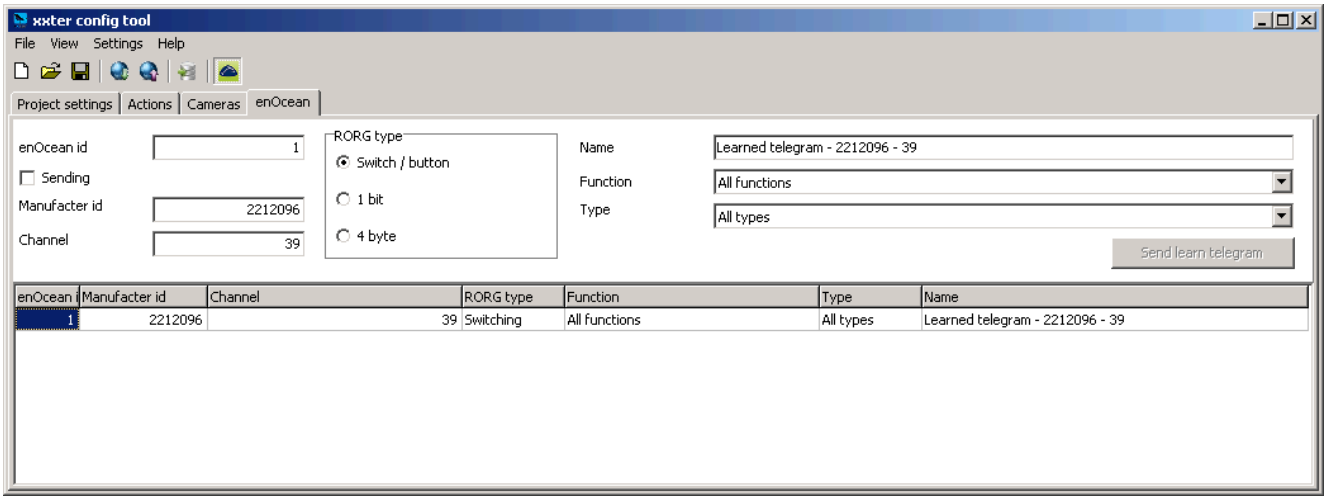
For instance a switch (RPS) can have one button A and another button B or a CO_2 sensor (BS4 – 09 – 04) will have A as the CO_2 concentration, B as the temperature and C as the humidity.

Using the xxter configuration tool

In the configuration tool, open a project or create a new one. Configure the IP address of the xxter unit in the tool settings and connect to the xxter unit, using the button on the right hand side of the toolbar (with the enOcean symbol). This will enable the configuration tool to receive the enOcean teach telegrams from the xxter unit.

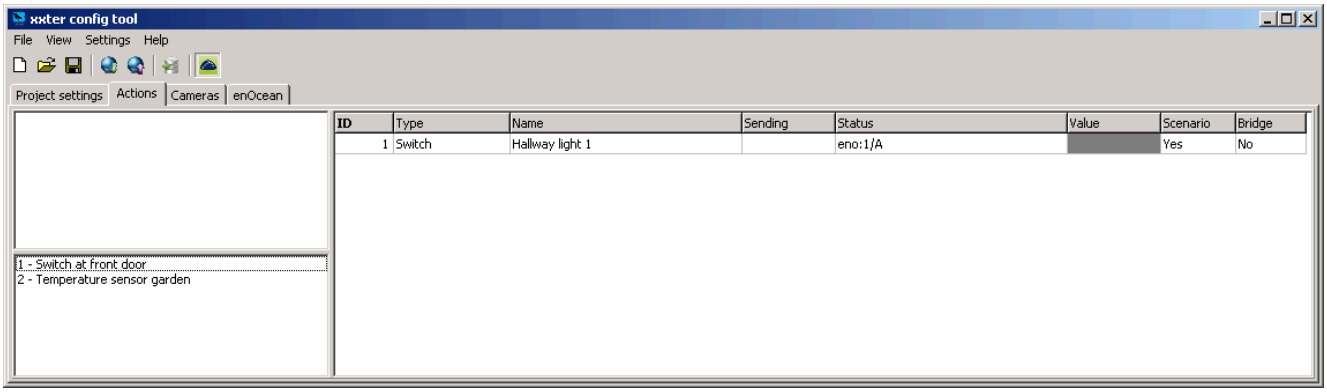
The configuration tool will automatically add every “teach telegram” it receives to the project. The learned telegrams can be found on the fourth tab of the tool.

When a teach telegram contains the type, it will automatically be included. If this is not the case, the type must be looked up in addendum 2 (only for BS4 telegrams) and selected manually.



Added telegrams can be connected to actions, just as you would when using the ETS import.

Important: teached telegrams can only be received and not be transmitted. Therefor these telegrams can only be connected to status groups of actions.



By default the letter A will be connected, since every type of telegram will always have at least one value. The letter can be changed manually if needed.

TIP: to quickly connect telegrams to actions, select the proper status field before sending/receiving the teach telegram. This will automatically connect the received telegram to this action. When a switch is pressed the specific switch telegram will be sent and also the right letter will be automatically added, for instance letter B for the second switch button.

Sending telegrams

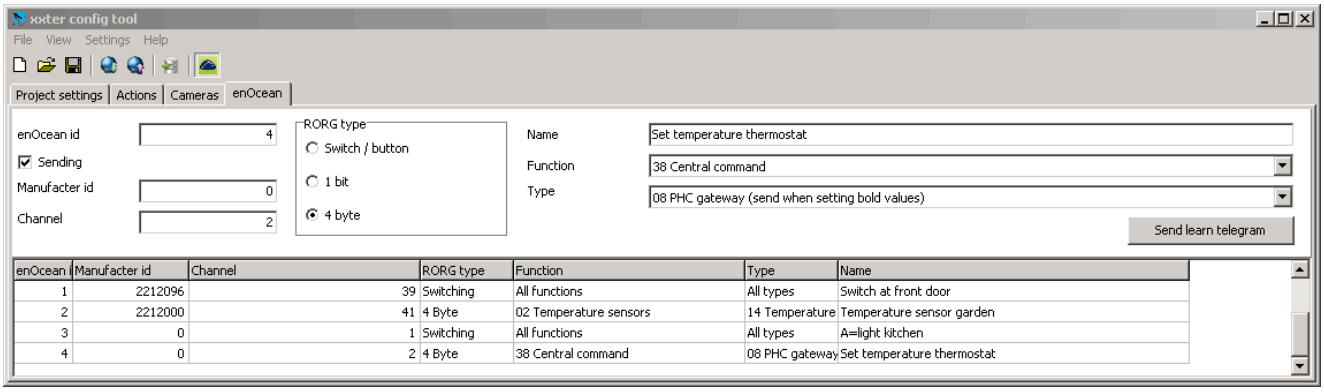
To control other units with xxter, xxter will also need to send telegrams that can be teached in by other devices.

To do this, create a new telegram in the configuration tool on the fourth tab (the enOcean tab) by clicking the right mouse button somewhere on the sheet.

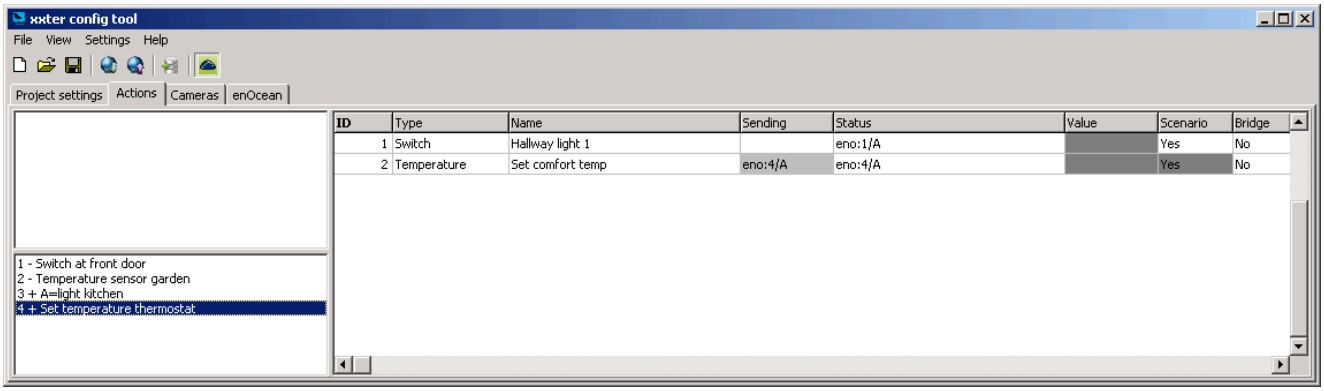
A sending telegram will always have a manufacturer ID of 0. You will need to manually select a channel for every sending telegram, which needs to be unique. To send telegrams there are 128 channels available, in a range from 0 to 127. When a switch telegram (RPS) is used, four buttons van be used per channel. Therefore there are a total of 128 4byte telegrams, 512 switch commands or a combination of the two possible. This restriction only applies to the sending telegrams.

When sending 4byte telegrams, the appropriate type and function also need to be configured.

To teach a device the new sending telegram, activate “learning mode” on the receiving device and send a learning telegram from the xxter configuration tool by clicking the “Send learning telegram” button.



Of course sending telegrams can also be connected to actions using the configuration tool.



In the list shown on the lower right of the configuration tool you can see whether a telegram is sending or receiving by the + and - symbols shown in front of the name. A sending telegram is shown with a + and a receiving telegram is shown with a - symbol.

Combining KNX and enOcean

It is also possible to combine enOcean and KNX using xxter. In the actions table in the tool, there is column titled *bridge*.

When you want to send a telegram or value from the KNX-bus to an enOcean device add a separate action. In this action fill in the enOcean telegram as the sending group address and teach in the telegram at the required enOcean device. In the status field fill in the KNX group address and in the *bridge* column select the option “on change” or “always”.

When selecting the bridge option “on change” an enOcean telegram will only be sent when the value changes. When selecting the option “always” any received telegram from the status groups will trigger the sending of a telegram.

Sending an enOcean telegram on the KNX-bus works exactly the same, but the other way around. Teach in the enOcean telegram in the status field and fill in the proper KNX group as a sending group. The bridge column works the same.

xxter enOcean telegram types

Func	Type	Letter	Description
2			Temperature sensors
	1		Temperature sensor range -40 to 0 °C
		A	Temperature (°C)
	2		Temperature sensor range -30 to 10 °C
		A	Temperature (°C)
	3		Temperature sensor range -20 to 20 °C
		A	Temperature (°C)
	4		Temperature sensor range -10 to 30 °C
		A	Temperature (°C)
	5		Temperature sensor range 0 to 40 °C
		A	Temperature (°C)
	6		Temperature sensor range 10 to 50 °C
		A	Temperature (°C)
	7		Temperature sensor range 20 to 60 °C
		A	Temperature (°C)
	8		Temperature sensor range 30 to 70 °C
		A	Temperature (°C)
	9		Temperature sensor range 40 to 80 °C
		A	Temperature (°C)
	A		Temperature sensor range 50 to 90 °C
		A	Temperature (°C)
	B		Temperature sensor range 60 to 100 °C
		A	Temperature (°C)
	10		Temperature sensor range -60 to 20 °C
		A	Temperature (°C)
	11		Temperature sensor range -50 to 30 °C
		A	Temperature (°C)
	12		Temperature sensor range -40 to 40 °C
		A	Temperature (°C)
	13		Temperature sensor range -30 to 50 °C
		A	Temperature (°C)
	14		Temperature sensor range -20 to 60 °C
		A	Temperature (°C)
	15		Temperature sensor range -10 to 70 °C
		A	Temperature (°C)
	16		Temperature sensor range 0 to 80 °C
		A	Temperature (°C)
	17		Temperature sensor range 10 to 90 °C
		A	Temperature (°C)
	18		Temperature sensor range 20 to 100 °C
		A	Temperature (°C)
	19		Temperature sensor range 30 to 110 °C
		A	Temperature (°C)

xxter enOcean telegram types

Func	Type	Letter	Description
	1A		Temperature sensor range 40 to 120 °C
		A	Temperature (°C)
	1B		Temperature sensor range 50 to 130 °C
		A	Temperature (°C)
	20		Temperature sensor range -10 to 41.2 °C
		A	Temperature (°C)
	30		Temperature sensor range -40 to 62.3 °C
		A	Temperature (°C)
4			Temperature and humidity sensor
	1		Temperature range 0 to 40 °C and humidity 0-100%
		A	Humidity (%)
		B	Temperature (°C)
	2		Temperature range -20 to 60 °C and humidity 0-100%
		A	Humidity (%)
		B	Temperature (°C)
6			Light sensor
	1		Range 300lx to 60.000lx
		A	Illumination (lux)
		B	Supply voltage (V)
	2		Range 0lx to 1020lx
		A	Illumination (lux)
		B	Supply voltage (V)
7			Occupancy sensor
	1		Occupancy
		A	Occupancy (0/1)
8			Light, temperature and occupancy sensor
	1		Range 0lx to 510lx, 0 to 51 °C and occupancy
		A	Temperature (°C)
		B	Illumination (lux)
		C	PIR (0/1)
		D	Button (0/1)
		E	Supply power (V)
	2		Range 0lx to 1020lx, 0 to 51 °C and occupancy
		A	Temperature (°C)
		B	Illumination (lux)
		C	PIR (0/1)
		D	Button (0/1)
		E	Supply power (V)

xxter enOcean telegram types

Func	Type	Letter	Description
	3		Range 0lx to 1530lx, 0 to 51 °C and occupancy
		A	Temperature (°C)
		B	Illumination (lux)
		C	PIR (0/1)
		D	Button (0/1)
		E	Supply power (V)
9			Gas sensor
	1		CO sensor
		A	Concentration (ppm)
		B	Concentration (ppm)
		C	Temperature (°C)
	4		CO2 sensor
		A	Concentration (ppm)
		B	Temperature (°C)
		C	Humidity (%)
10			Room operating panel
			Not yet available
11			
			Not yet available
12			Automated meter reading
	0		Counter
		A	Counter value
		B	Current value (1/s)
		C	Measurement channel (0..15)
	1		Electricity
		A	Cumulative value (kWh)
		B	Current value (W)
		C	Tariff info (0..15)
	2		Gas
		A	Cumulative value (m3)
		B	Current value (l/s)
		C	Tariff info (0..15)
	3		Water
		A	Cumulative value (m3)
		B	Current value (l/s)
		C	Tariff info (0..15)

xxter enOcean telegram types

Func	Type	Letter	Description
13			Environmental Applications
	1		Weather station
		A	Dawn sensor (0..999 lux)
		B	Temperature (-40..80 ˚C)
		C	Wind speed (0..70 m/s)
		D	Night / day (0/1)
		E	Dry / rain (0/1)
	2		Sun intensity (northern hemi)
		A	Intensity west (1..150 klux)
		B	Intensity south (1..150 klux)
		C	Intensity east (1..150 klux)
	3		Date exchange
		A	Day (1..31)
		B	Month (1..12)
		C	Year (2000..2099)
		D	RTC / GPS or eq. (0/1)
	4		Time and date exchange
		A	Weekday (1=Monday..7=Sunday)
		B	Hour (0..23)
		C	Minute (0..59)
		D	Second (0..59)
		E	24 or 12 hours (0/1)
		F	AM or PM (0/1)
		G	RTC / GPS or eq. (0/1)
	5		Direction exchange
		A	Elevation (-90 to 90, 0=horizon)
		B	Azimut (0 to 359, 0=north)
	6		Geographical position exchange
		A	Latitude (-90 - 90˚)
		B	Longitude (-180 - 180˚)
20			HVAC Components
			Not yet available
30			Digital input
	1		Single input, batt. monitor
		A	Contact open/closed (0/1)
		B	Batt. LOW / OK (0/1)
	2		Single input
		A	Contact closed/open (0/1)

xxter enOcean telegram types

Func	Type	Letter	Description
37			Energy management
			Not yet available
38			Central command
	8		PHC gateway
		A	Time for delay and lock (0.1 .. 6553 s)
		B	Unlock / lock (0/1)
		C	Duration / delay (0/1)
		D	**Switch OFF/ON (0/1)**
		E	**Dim value (0..100%)**
		F	Ramping time (0..255 s)
		G	Absolute dim value / relative (0/1)
		H	Store value yes/no (0/1)
		I	Switch OFF/ON (0/1)
		J	**Setpoint shift (-12.7 .. 12.8 K)**
		K	**Set new basic setpoint (0..51.2 ˚C)**
		L	**Control variable override (0..100%)**
		M	Controller mode (0=auto, 1=heating, 2=cooling, 3=off)
		N	Controller state (0=auto, 1=override)
		O	Energy hold off (0=normal, 1=energy hold off / dew point)
		P	Occupancy (0=occupied, 1=unoccupied / 2=standby)
		Q	**Fanspeed (0..3 or 255) 255=auto**
			These telegrams are only send with the bold character
	1		Central switch variant for Eltako and Opus Greennet
		A	Block switching state (1=blocked, 0 = not blocked)
		B	Switching state (1 = on, 0 =off)
	2		Central dim value variant for Eltako and Opus Greennet
		A	Dim speed (0=speed of dimmer, 1=fast, 255=slow)
		B	**Dim value (0-100%)**

xxter - enocean device list

Brand	Article	Telegram
Eltako	FABH63	BS4 - 08 - 01
	FBH55	BS4 - 08 - 01
	63882530	BS4 - 08 - 01
	FIBH63	BS4 - 08 - 01
	FAFT60	BS4 - 04 - 02
	FIFT63AP	BS4 - 04 - 02
	FAH60	BS4 - 06 - 01
	FAH63	BS4 - 06 - 01
	FIH63	BS4 - 06 - 01
	FASM60	RPS - B
	FSM12	RPS - B
	FSM61	RPS - B
	FSU12D	RPS - B
	FSU55D	RPS - B
	FKC	RPS - A
	FKF	RPS - A
	FRW	RPS - A
	FSS12	BS4 - 12 - 01
	FT4 (1 toets)	RPS - B
	FT4F (1 toets)	RPS - B
	FT55 (1 toets)	RPS - B
	FT4 (2 toetsen)	RPS - A/B
	FT4F (2 toetsen)	RPS - A/B
	FT55 (2 toetsen)	RPS - A/B
	FTF55	BS4 - 02 - 05
	FTK	BS1
	FTR55D	BS4 - 10 - 03
	FTR55H	BS4 - 10 - 03
	FWS61	BS4 - 13 - 01
		BS4 - 10 - 03
	FWZ12	BS4 - 12 - 01
	FWZ61	BS4 - 12 - 01
	FZS	RPS - A

Brand	Article	Telegram
Eltako	FADS60 - 230V	RPS - B
status	FFR61 - 230V	RPS - A/B
	FZK61NP - 230V	RPS - A/B
	FHK61 - 230V	RPS - B
	FHK61/8 - 24V	RPS - B
	FMS61NP - 230V	RPS - A/B
	FMZ61 - 230V	RPS - B
	FSB61NP - 230V	RPS - B
	FSR61NP - 230V	RPS - B
	FSR61 - 230V	RPS - B
	FSR61/8 - 24V	RPS - B
	FSR61VA - 10A	RPS - B
	FSR70W - 16A	RPS - B
	FTN61NP - 230V	RPS - B
	FLX61NP - 230V	RPS - B
	FUD61NP - 230V	RPS - B
		BS4 - 38 - 08
		(0x02 dim)=E
	FUD61NPN - 230V	RPS - B
		BS4 - 38 - 08
		(0x02 dim)=E
Eltako	FLC61 - 230V	BS4 - 38 - 01
central	FSB12	not supp. yet
	FSB61	not supp. yet
	FSR12-4x-12V DC	BS4 - 38 - 01
	FUD12NPN	BS4 - 38 - 01
		BS4 - 38 - 02
	FUD61NP	BS4 - 38 - 01
		BS4 - 38 - 02
	FUD61NPN	BS4 - 38 - 01
		BS4 - 38 - 02

OTHER BRANDS AND TYPES COMING SOON

Attachment 3

Use enOcean with character combination for switch commands with xxter

Character	STATUS Button	Meaning by status	SENDING Send by 1	Send by 0
A	1	1 by press	press button 1	press button 2
B	2	1 by press	press button 3	press button 4
C	3	1 by press	press button 5	press button 6
D	4	1 by press	press button 7	press button 8
E	1	0 by press	press button 1	release button 1
F	2	0 by press	press button 2	release button 2
G	3	0 by press	press button 3	release button 3
H	4	0 by press	press button 4	release button 4
I	1,2,3 & 4	0 by release	press button 5	release button 5
J	1,2,3 & 4	1 by release	press button 6	release button 6
K			press button 7	release button 7
L			press button 8	release button 8
M	1	toggle by press		
N	2	toggle by press		
O	3	toggle by press		
P	4	toggle by press		
Q	5	toggle by press		
R	6	toggle by press		
S	7	toggle by press		
T	8	toggle by press		

Enocean -> xxter
Example switchs with two (up/down)buttons

k1	k3
k2	k4

How to program k1 = ON, k2 = OFF

Type	Name	Sending	Status
Switch	S1		ENO:0/A, ENO:0/F

How to program to two toggle functions:

Type	Name	Sending	Status
Switch	S1		ENO:0/M
Switch	S2		ENO:0/N

Of even as a puls button

Type	Name	Sending	Status
Switch	S1		ENO:0/A, ENO:0/I

xxter -> enOcean
Which combination to use is depending on the actuator
Most actuators use two different buttons for switching, 1 for ON, 1 for OFF

Type	Name	Sending	Status
Switch	S1	ENO:0/A	

WINDOWS HANDLES (only status)

Character	Status
U	Locked (downward) = 1
V	Half open (upward) = 1
W	Open (horizontal) = 1